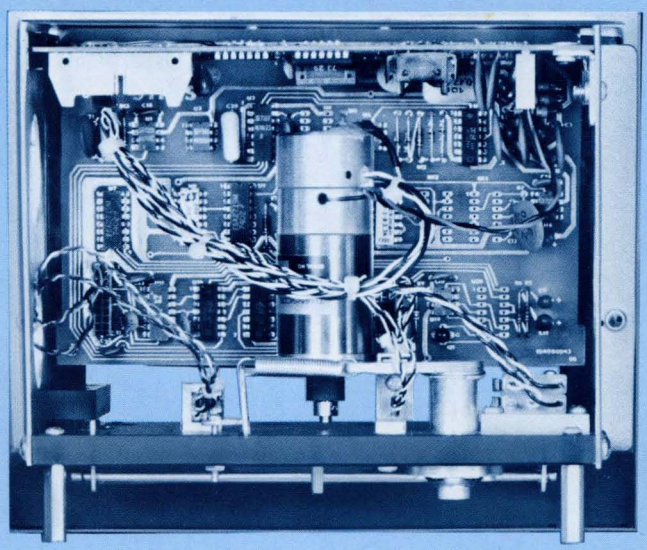
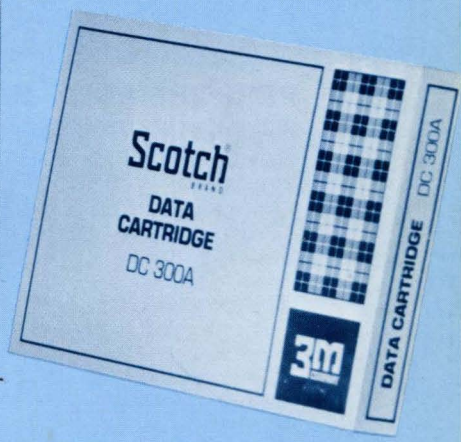
Represented By
Wm. C. BENISON CO,
315 Montgomery St., Suite 1120
San Francisco, CA 94104
(415) 398-2211

New SYKES TT140 cartridge drive





The Sykes Model TT140 Cartridge Recorder is an extremely reliable digital data storage device which incorporates the 3M DC300A quarter inch data cartridge.

The data cartridge is a thoroughly proven medium which contains a unique isoelastic band drive system. This system controls tape tension and tape motion with a single drive motor.

The TT140 drive power is provided by a precision DC motor with a digital tachometer for the velocity servo system which provides both tape and reel drive. The tape cartridge itself contains 300 feet of one-quarter inch certified computer grade tape and requires no external tape guidance. All of these factors ensure reliable recording of digital data.

The Model TT140 is fully bi-directional and reads or writes at up to 30 ips. With a 1600 bpi recording density, the transfer rate is 48,000 bits/second. Rewind and forward/reverse search operations are accomplished at 90 ips.

The basic TT140 is equipped with a single gap read/write head. A dual gap read after write head is available as an option. One, two or four track versions are available. Recording is done on only one track at any one time to allow complete cartridge interchangeability between transports utilizing different track configurations.

The TT140 has been designed to meet the full requirements of the proposed ANSI standard for quarter inch cartridge drives. The standard provides for a recording density of 1600 bpi written in a phase encoded format. For data format compatibility to the ANSI standard, the proper phase-encoded data including preamble, CRC and postamble must be presented to the TT140 unit in the correct serial form. The TT140 write electronics consists of head driver circuits and does not have provision for generation of specific data formats. The proper ANSI format can be referrred to in the proposed ANSI specification, Document Number X3 B5/15 dated February 7, 1974.

The Read electronics consist of pre-amplifiers, crossover detectors, peak detectors and an AGC loop. Read outputs are in digital form with a Data Strobe pulse for ease of clocking into an external register. A Data Present signal is also provided which can be used to signal the envelope of valid data on the Read Data output or the envelope of the IRG.

Manual controls on the TT140 are virtually non-existent since the unit is highly automated. An "unload cartridge" lever is the only manual control on the unit.

SYKES TT 140 Cartridge Drive

INTERFACE SIGNALS

INPUTS

Run/ — when asserted allows tape motion; when not asserted brings tape to stop

Reverse/ — when asserted motion is reverse; when not asserted motion is forward

Motor Clock — Tape speed is velocity servoed to the motor clock frequency and is related by the expression

$$fmc = 800N/3S$$

where fmc is Motor Clock freq in Hz
S is tape speed in ips
N is a switch selectable integer constant between 32 and 63 inclusive. The switches are located on the Motor control PC board.

Write/ — when asserted places transport in write mode; when not asserted places transport in read mode

Select 1, Select 2 — Selects tracks for reading and writing according to following table

Track	S1	S2	Track	S1	S2
0	0	0	2	0	1
1	1	0	3	1	1

Write Data — Serial data to be written on tape. Encoding method and format may be determined by user.

OUTPUTS

Load Point/ — Asserted while Load Point hole is under the sensor

EOT/ — Asserted while EOT hole is under the sensor (Both lines are asserted while BOT holes are under the sensor).

Cartridge Protect — Asserted when the cartridge has been write protected. This condition inhibits writing.

Cartridge Ready — Asserted when cartridge is inserted into the transport.

Tachometer — A pulse train indicating motor rotation. Each pulse represents 3.75 mils of tape movement.

Read Data — Digital data retrieved from tape. Identical in format to Write Data.

Data Strobe — A one ms. min. pulse occurring with each transition of Read Data.

Data Present — When asserted indicates data is being read.

PERFORMANCE SPECIFICATIONS

Cartridge Type: 3M, DC300A Isolastic Data Cartridge
Tape Length: 300 feet
Tape Width: 0.25 inches (1 mil thick)
Recording Density: 1600 bpi
No. of Tracks: 1, 2 or 4
Recording Head: Single gap read/write. Optional, dual gap read after write.
Recording Format: Phase encoded recommended.
Recording Mode: Single track serial
Read/Write Speed: Up to 30 ips, Bi-directional
Search Speed: 90 ips, Bi-directional

Start time to Write:	25 ms	at 30 ips
Start time to Read:	15 ms	
Stop time R/W:	35 ms	
IRG (Total):	0.69 inches	
Search Start Time:	60 ms	at 90 ips
Search Stop Time:	60 ms	
Search Stop Distance:	2.5 inches nominal	

Performance: Compatible with ANSI for ¼ inch cartridge drives

Interface: DTL/TTL compatible

Power Requirements:
+5 VDC @ 250 ma (2% Reg.)
+15 VDC @ 900 ma Avg. 2 Amps Peak (2% Reg.)
−15 VDC @ 900 ma Avg. 2 Amps Peak (2% Reg.)

OR

+5 VDC @ 250 ma (2% Reg.)
+15 VDC @ 150 ma (2% Reg.)
−15 VDC 150 ma (2% Reg.)
+20 V UNREG. @ 750 ma Avg. 2 Amps Peak
−20 V UNREG. @ 750 ma Avg. 2 Amps Peak

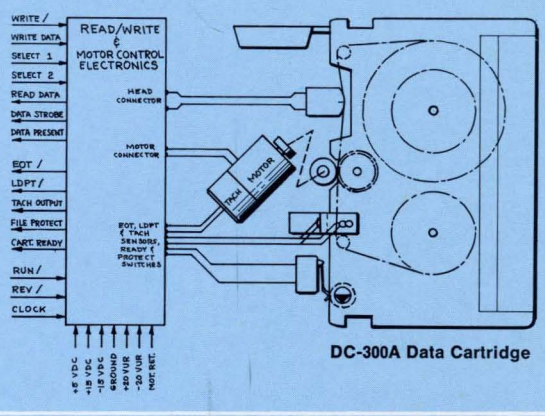
Power Consumption: Standby 6 Watts
Running 21 Watts

ENVIRONMENTAL AND PHYSICAL SPECIFICATIONS

- **Operating Temperature Range:** +5° C to +45° C
- **Operating Humidity Range:** 20 to 80% without condensation
- **Weight:** 4½ pounds
- **Dimensions:** 6⅝" high x 8¼" wide x 5" deep

OPTIONS

- Read after Write
- One, two or four track
- Front panel and bezel
- Interface connector kit
- Power Supply



DC-300A Data Cartridge

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FOR ADDITIONAL INFORMATION

MIDDLE ATLANTIC REGION
88 Sunnyside Blvd.,
Plainview, NY 11803
Tel. (516) 938-7692, Telex 14-4677

NORTHEAST DISTRICT
132 Woodlawn Circle
Marshfield, Mass. 02050
Tel. (617) 837-1711

EAST CENTRAL REGION
375 Orchard St.
Rochester, NY 14606
Tel. (716) 458-8000, Telex 97-8326

WESTERN REGION
17612 Beach Blvd., Suite 19
Huntington Beach, Cal. 92647
Tel. (714) 848-0544, Telex 97-4700

SYKES DATATRONICS INC. ®
375 ORCHARD STREET
ROCHESTER, NEW YORK 14606
(716) 458-8000 TELEX 97-8326

For other offices, contact the head office.